OFFICE OF
RIVER PROTECTION
United States Department of Energy

Hanford Advisory Board

PHOENIX – Tanks Edition

(PNNL-Hanford On-line Environmental Information eXchange)

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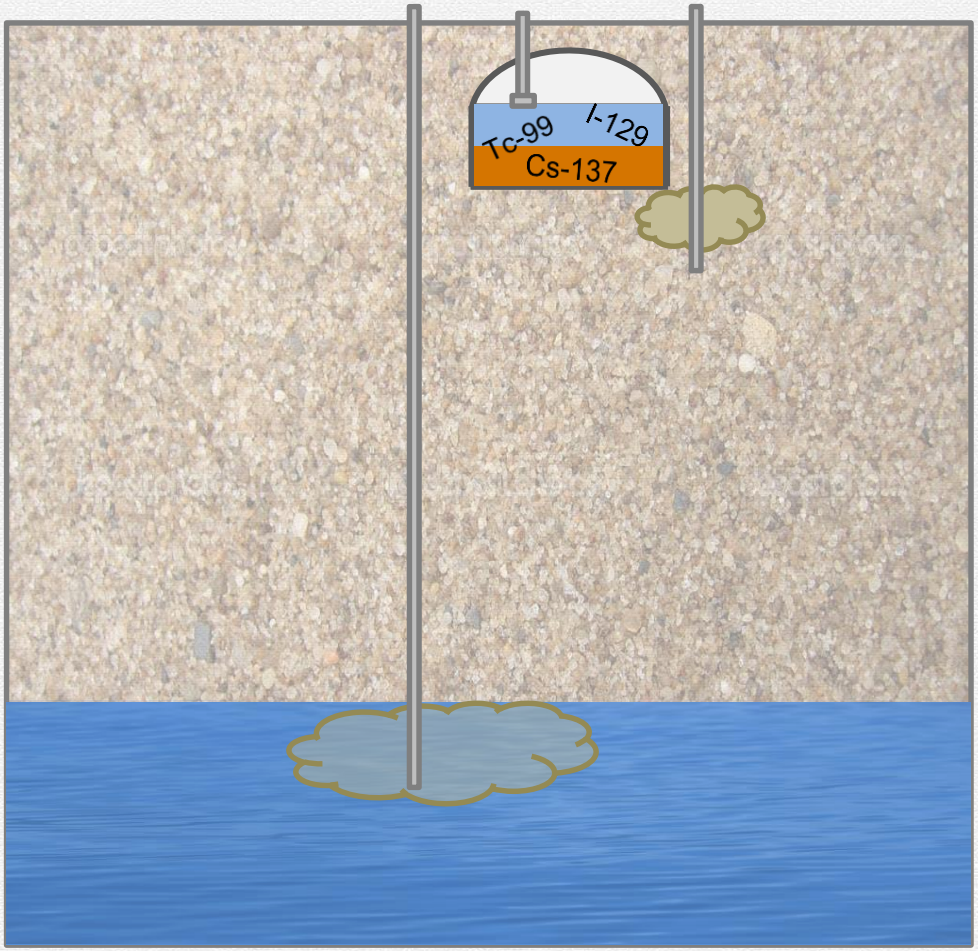
PHOENIX – Tanks Edition

- **PHOENIX is a set of publicly-accessible web applications for rapidly accessing and visualizing Hanford environmental monitoring data.**
  - Provides visualization tools to enhance understanding of Hanford's environmental conditions.
  - Improves public access to data.
  - Allows all parties to obtain a common understanding of environmental conditions and trends.
- **PHOENIX - Groundwater Edition has been open to the public since Fall 2011.**
- **PHOENIX - Tanks Edition provides a single web portal to multiple data sets that are *currently available* to the public through separate access points.**

Background

- U.S. Department of Energy (DOE) Office of River Protection (ORP) recognized a need for easier access to tank data and desires to increase transparency.
- Pacific Northwest National Laboratory's (PNNL's) PHOENIX team had already created a prototype for accessing and visualizing tank sensor data through PHOENIX.
- March 2013 - ORP approves development of an on-line tank data application through PHOENIX in order to improve public access to relevant data.
- April 15, 2015 - PHOENIX Tanks Edition made publicly available.

View Data from Surface to Groundwater



In-tank Sensor Data

Tank Waste Volume Data

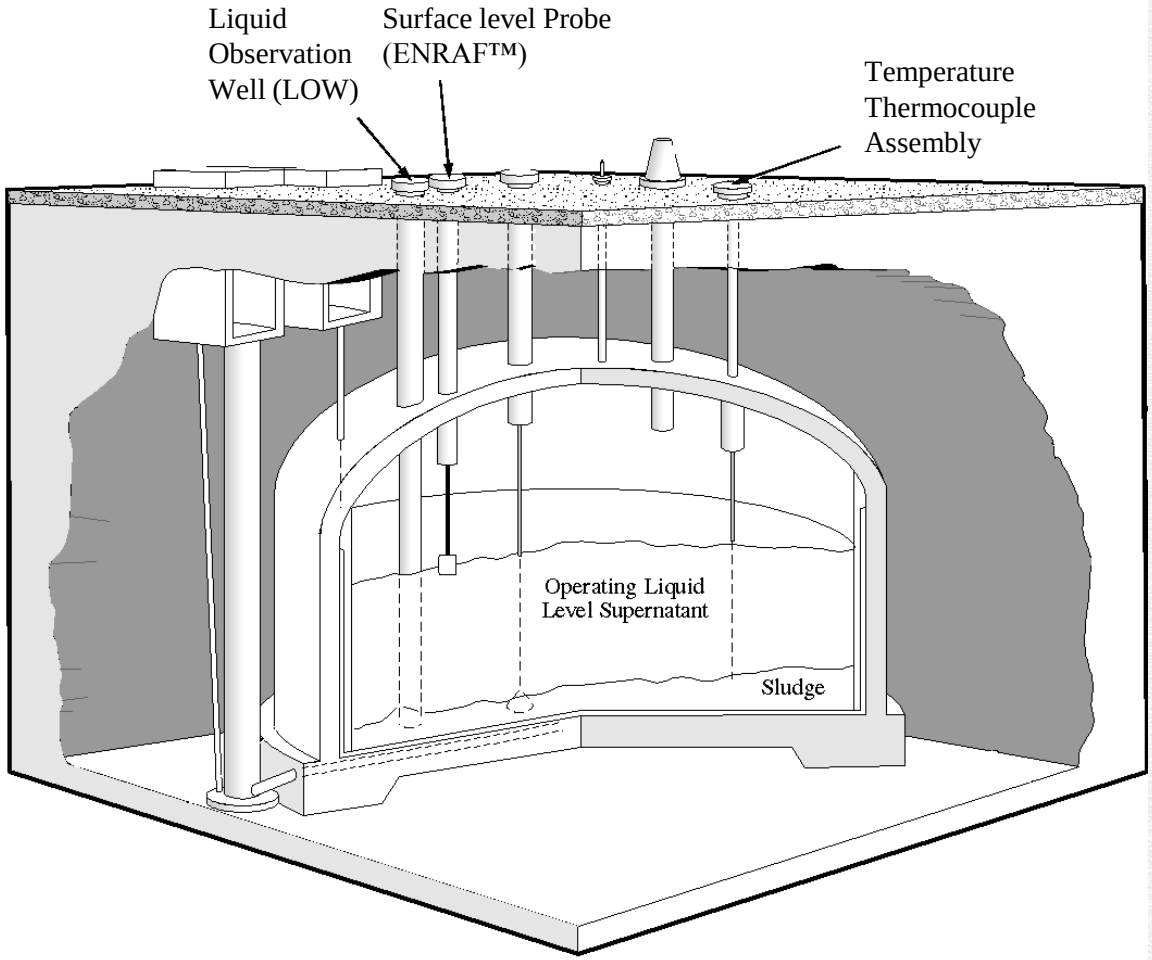
Tank Waste Phases

Tank Waste Chemical and Radionuclide Inventory

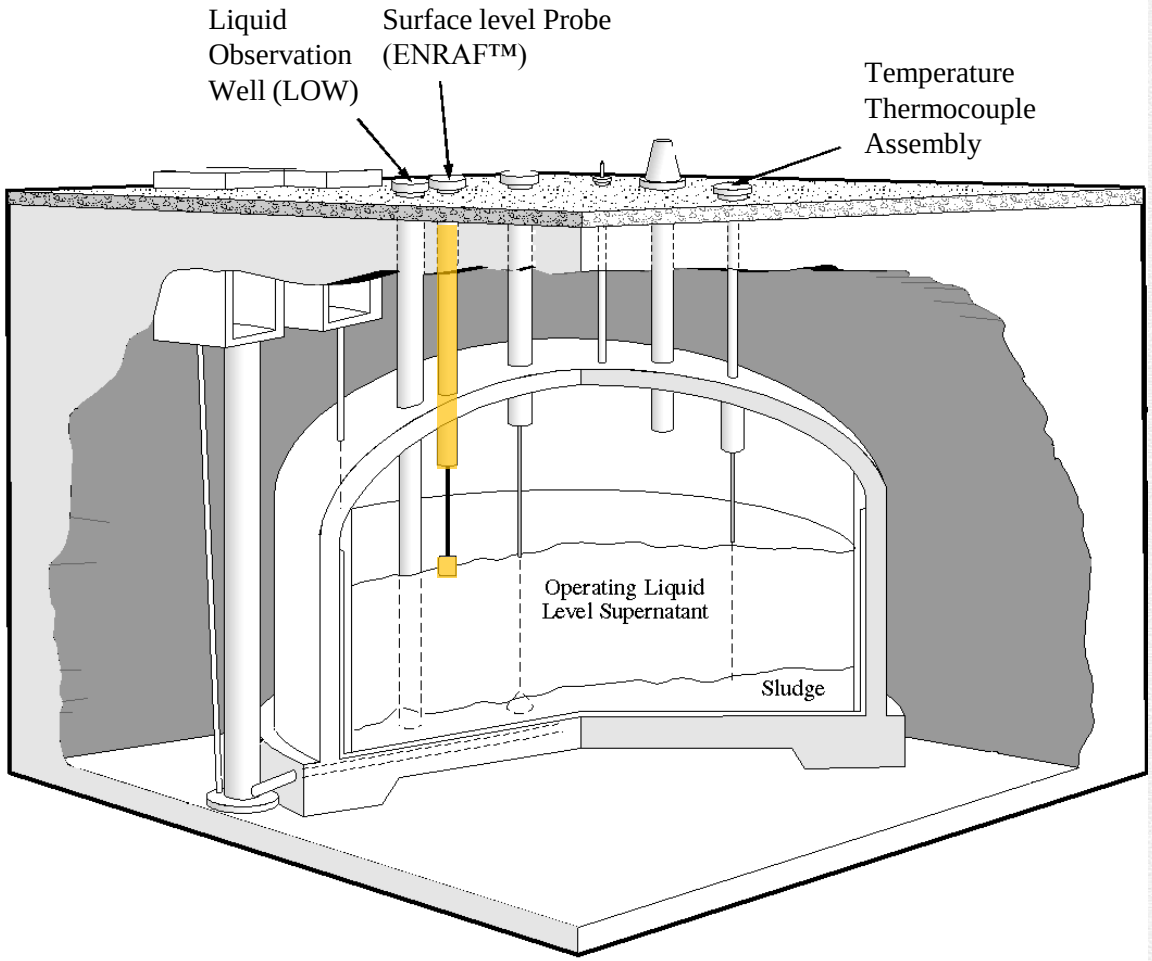
Vadose Zone Gamma Logs

Groundwater Contaminant Concentration Data

Tank Monitoring



Tank Monitoring



Surface Level Measurements:

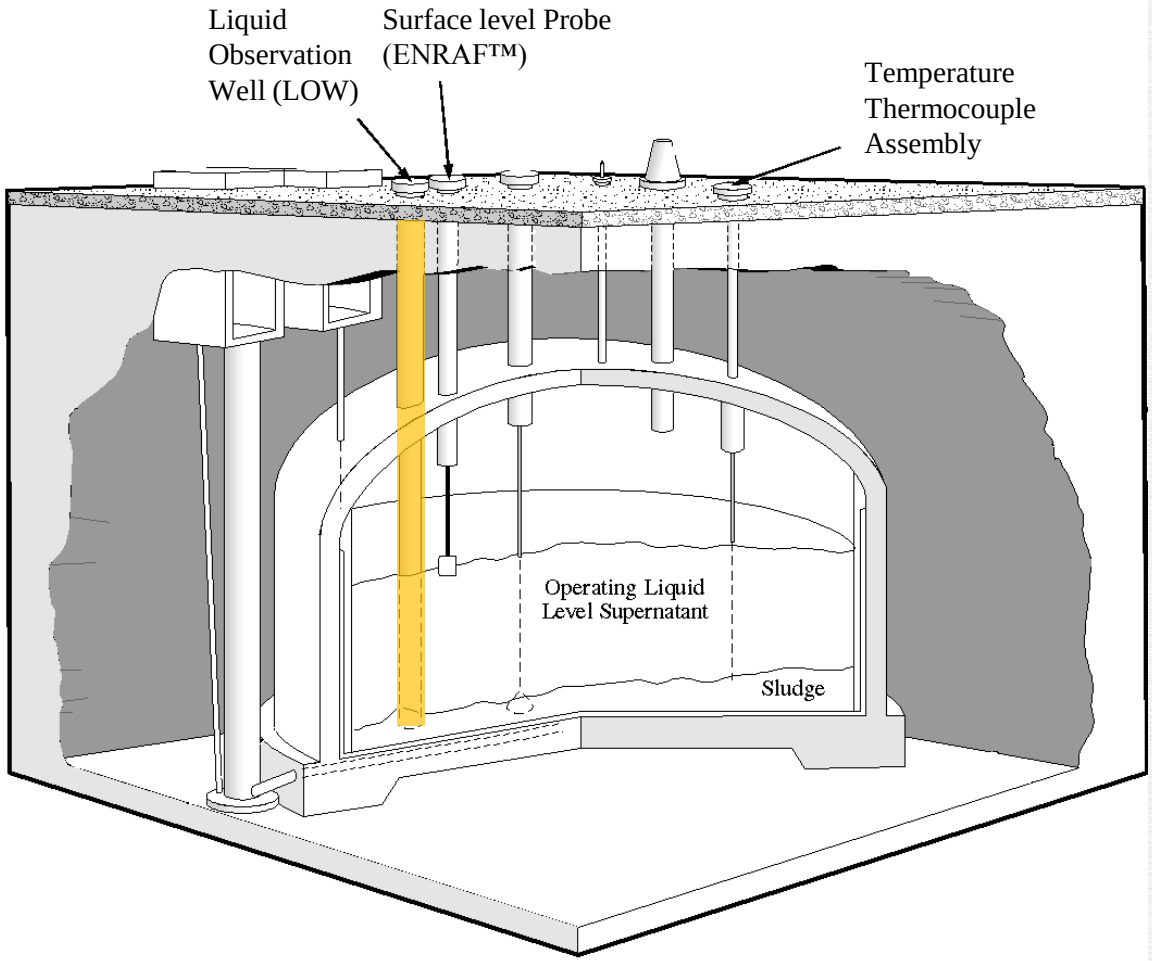
Shows waste level.

Surface can be irregular (sludge or saltcake islands).

A variety of instruments have been used over the years.

Currently, ENRAF™ probes are used (auto and manual).

Tank Monitoring



Interstitial Liquid Level Measurements:

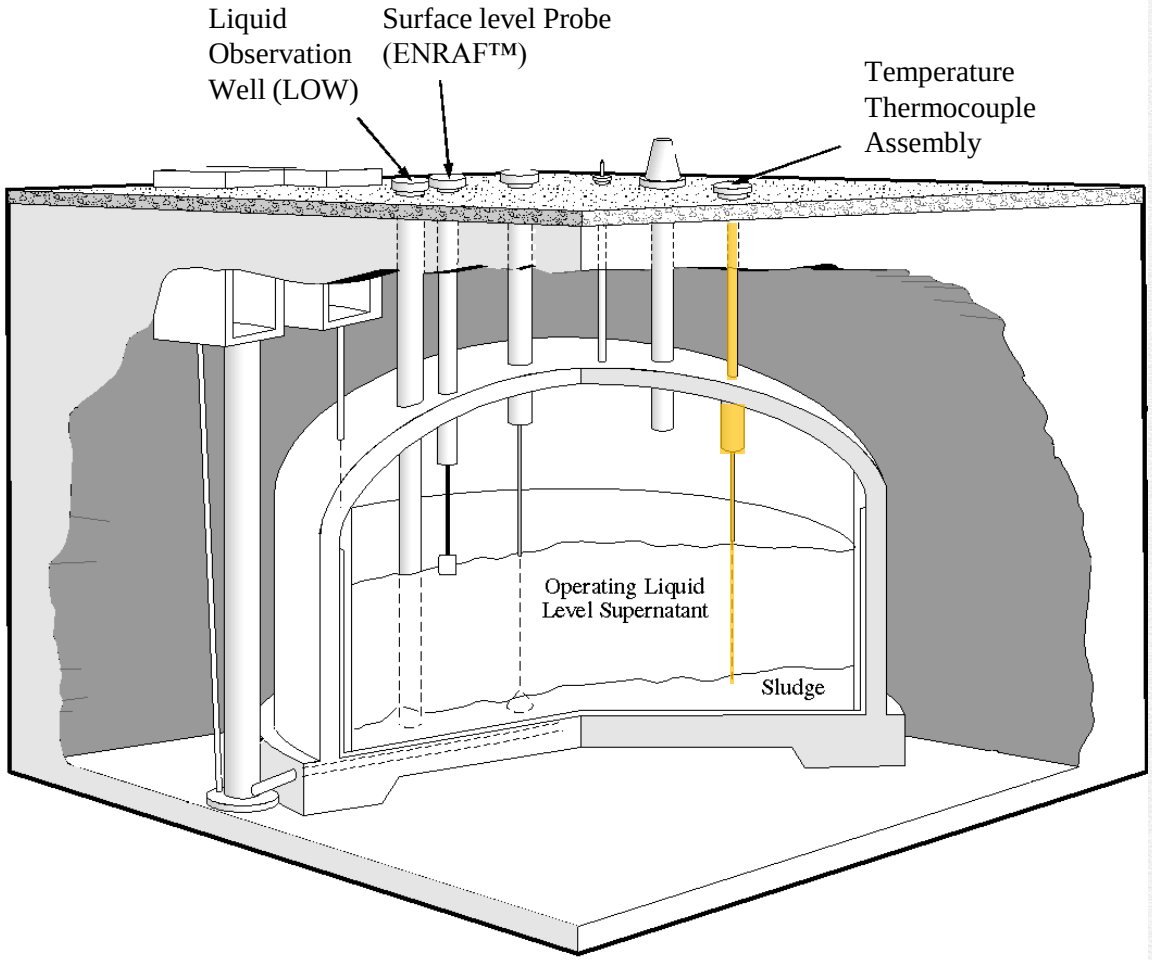
Provides liquid level monitoring for single-shell tanks (SSTs) with solid waste surfaces.

Gamma or Neutron probes are lowered down the well.

The probes emit radiation and detect a "reflection" signature.

The signature indicates the presence of liquid.

Tank Monitoring



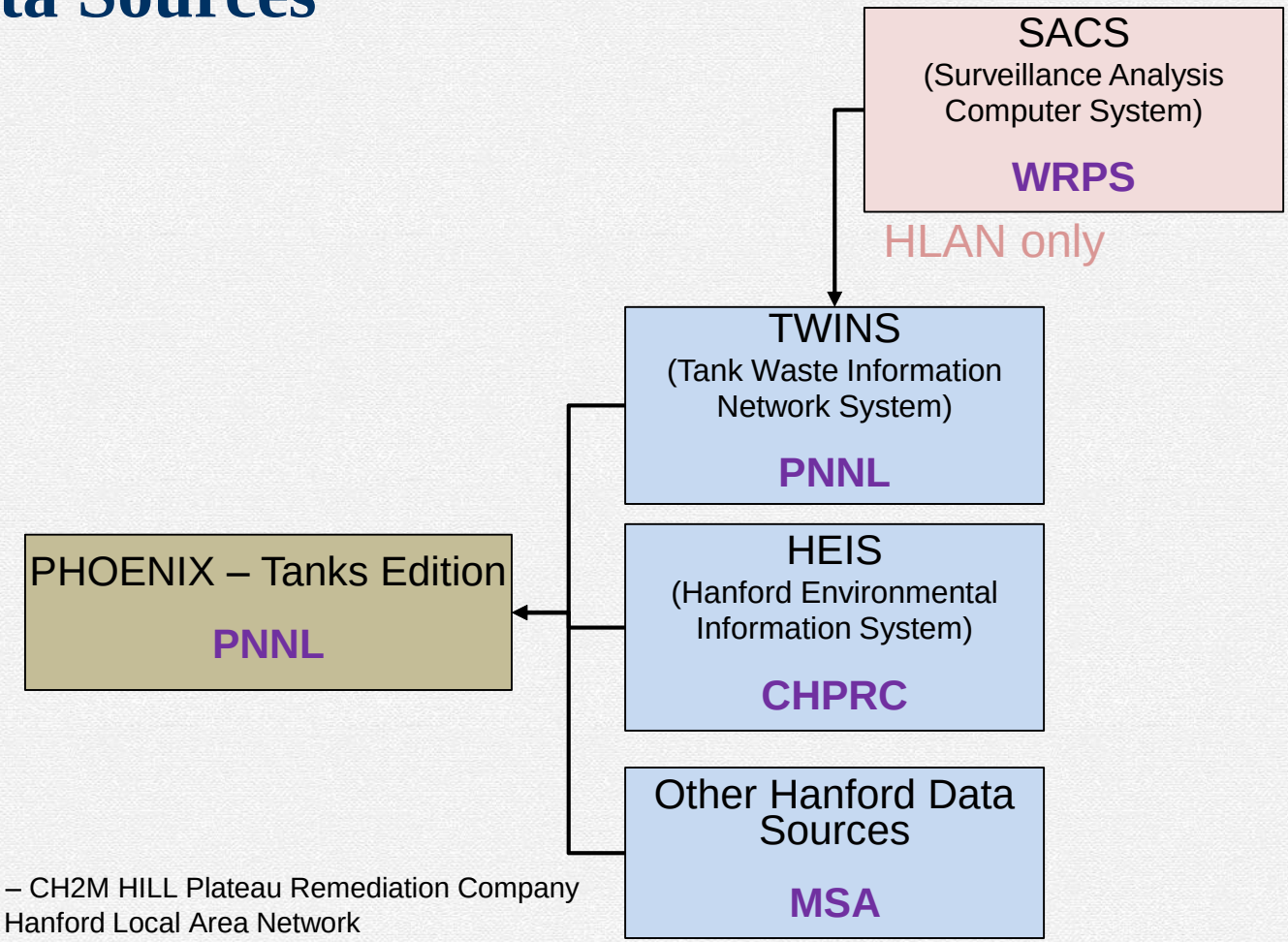
Temperature Measurements:

Groups of thermocouples are assembled in a pipe.

These thermocouple assemblies measure temperatures at regular vertical intervals.

Thermocouple assemblies extend through the waste giving a temperature profile from the surface to the bottom.

Data Sources



CHPRC – CH2M HILL Plateau Remediation Company
HLAN – Hanford Local Area Network
MSA – Mission Support Alliance
PNNL – Pacific Northwest National Laboratory
WRPS – Washington River Protection Solutions